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It is to be understood that the applicant, by amending the claims, does not acquiesce to the Examiner's characterizations of the art of record or to applicants' subject matter recited in the pending claims. Further, applicants are not acquiescing to the Examiner's statements as to the applicability of the prior art of record to the pending claims by filing the instant responsive amendments.

In view of the following discussion, the applicants submit that none of the claims now pending in the application is obvious under the provisions of 35 U.S.C. §103. Thus, the applicants believe that all of these claims are now in allowable form.

Specification Amendments

The applicants have amended the specification to provide minor grammatical corrections and change reference designations to conform to the reference designations in the drawings. Further, the applicants have amended the specification to update references to incorporated patent applications, which have issued into patents subsequent to the filing of this application. Such grammatical corrections, reference designation changes, and cross-reference updates do not add any new subject matter to the application.

Allowable Subject Matter

The Examiner has noted that claims 1-18 contain allowable subject matter. The applicants thank the Examiner for indicating such allowable subject matter with respect to claims 1-18.

Rejections

35 U.S.C. §103

The Examiner has rejected claims 19 and 23-27 under 35 U.S.C. §103(a) as being unpatentable over the Asamizuya et al. patent (U.S. Patent No. 6,314,576, issued November 6, 2002) in view of the Liu et al. patent (U.S. Patent No. 5,970,233, issued October 19, 1999) and the Russo et al. patent (U.S. Patent No. 5,701,383, issued December 23, 1997). The applicants respectfully traverse the rejection.

A.   <u>Claims 19 and 23-27</u>

The applicants' invention in claim 19 (and similarly independent claims 23 and 24) recites:

> A method for providing demand television comprising the steps of:
> <u>encoding, in real-time, a broadcast video frame sequence to form a broadcast bitstream, while at the same time encoding the broadcast video frame sequence to form a storage bitstream</u>;
> broadcasting the broadcast bitstream to subscriber equipment;
> storing the storage bitstream within a storage device;
> upon a subscriber selecting to view information previously broadcast by the broadcast bitstream, transmitting to the subscriber the storage bitstream; and
> upon a request from a subscriber, switching from decoding said storage bitstream to decoding said broadcast bitstream.
> (emphasis added)

The test under 35 U.S.C. §103 is not whether an improvement or a use set forth in a patent would have been obvious or non-obvious; rather the test is whether the claimed invention, <u>considered as a whole</u>, would have been obvious. <u>Jones v. Hardy</u>, 110 U.S.P.Q. 1021, 1024 (Fed. Cir. 1984) (emphasis added). None of the references, either singly or in combination, teach or suggest the applicants' invention <u>as a whole</u>.

In particular, the Asamizuya reference fails to teach or suggest "<u>encoding</u>, in real-time, a broadcast video frame sequence to form <u>a broadcast bitstream</u>, while <u>at the same time encoding</u> the broadcast video frame sequence <u>to form a storage bitstream</u>." Specifically, the Asamizuya reference discloses providing an encoding device, where the encoder compresses and encodes video signals and audio signals of a film stock or a VTR stock input via a switching circuit based on the MPEG-2 standard. A controller performs a control for storing the digitally compressed and encoded AV signals transmitted from the encoder to an archive storage (see Asamizuya, column 9, lines 3-9, and column 10, lines 4-6). As the Examiner concedes, nowhere is there any teaching or suggestion in the Asamizuya reference of <u>encoding a broadcast video frame sequence to form a broadcast bitstream, while at the same time encoding the broadcast video frame sequence to form a storage bitstream</u>.

Further, the Liu reference fails to bridge the substantial gap as between the Asamizuya reference and the applicants' invention. Specifically, the Liu reference

discloses copying an encoded video bitstream to a mass storage device for future playback and/or transmit the encoded video bitstream to a transmitter for real-time transmission to a remote receiver (see Liu, column 3, lines 36-42). That is, the Liu reference merely teaches that a previously encoded video bitstream is merely copied, and then the copied version is stored into a mass storage device. This is completely different from the applicants' invention where "a broadcast video frame sequence is encoded to form a broadcast bitstream, while at the same time the broadcast video frame sequence is encoded to form a storage bitstream." That is, a single broadcast video frame sequence is encoded twice, where both encoding instances occur contemporaneously. A first encoding instance forms a broadcast bitstream, while a second encoding instance forms a storage bitstream. That is, both the broadcast bitstream and the storage bitstream are formed contemporaneously.

Moreover, the Russo reference also fails to bridge the substantial gap as between the combination of the Asamizuya reference and the Liu reference and the applicants' invention. Specifically, the Russo reference merely discloses:

> "If a time-shifted version of the program is being output for any reason, a FAST FORWARD command may be entered, in which case playback is speeded up until deactivation of the command, at which time normal playback resumes, resulting in the output of the program exhibiting a reduced time shift, including a zero time shift in the event the operator "catches up" with the incoming program as it is being received." (See Russo, column 3, lines 31-38.)

Nowhere in the Russo reference is there any teaching or suggestion of "encoding, in real-time, a broadcast video frame sequence to form a broadcast bitstream, while at the same time encoding the broadcast video frame sequence to form a storage bitstream."

Even if the three references could somehow be combined, and the applicants submit that the three references may not be combined, the combination would still fail to teach or suggest the invention as a whole. Specifically, the combination would merely disclose encoding video and audio signals based on an MPEG-2 standard, copying the encoded AV signals, and storing the copied encoded AV signals to a mass storage device. Since none of the references, either singly or in combination, teach or suggest "encoding, in real-time, a broadcast video frame sequence to form a broadcast

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bitstream, while at the same time encoding the broadcast video frame sequence to form a storage bitstream," these references fail to teach the applicants' invention as a whole.

As such, the applicants submit that claim 19 is not obvious and fully satisfies the requirements of 35 U.S.C. §103 and is patentable thereunder. Likewise, independent claims 23 and 24 have been amended to recite similar limitations as recited in claim 19. As such and for at least the same reasons discussed above, the applicants submit that these independent claims also fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Furthermore, claims 25-27 depend from independent claim 24 and recite additional features thereof. As such, and for at least the same reasons as discussed above, the applicants also submit that these dependent claims are not obvious and also fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, the applicants respectfully request that the rejections be withdrawn.

The Art Made of Record and Not Relied Upon

The references cited and not relied upon have been studied, and it is submitted that their disclosures are insufficiently pertinent to the claimed invention to warrant a detailed statement of the manner in which the present claims distinguish patentably over such references.

Conclusion

The applicants believe that all of the claims presently in the application are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Eamon J. Wall, Esq. at (908) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

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Respectfully submitted,

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Dated: _1/14/02_

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MARKED UP SPECIFICATION

On page 1, please replace the paragraph beginning on line 6 with the following paragraph:

The disclosure contained in this application is related to U.S. [patent application serial number _____ (attorney docket number 167), filed simultaneously herewith and]patent number 6,389,218, issued May 14, 2002, which is herein incorporated by reference.

On page 1, replace the paragraph beginning on line 25 with the following paragraph:

In a video-on-demand system such as the OnSet™ system manufactured by DIVA Systems Corporation, a file server is used for streaming video information to users (subscribers) of the system. The OnSet™ system is described in U.S. patent [application serial number 08/984,710, filed December 3, 1997] 6,253,375, and the file server is described in U.S. patents 5,671,377 and 5,581,778. The disclosures of this application and these patents are incorporated herein by reference. The OnSet™ system contains service provider equipment coupled through an information distribution network to subscriber equipment. This system provides subscribers VCR-like controls to enable a subscriber to select information content, for example, a movie, then play, fast forward, rewind, pause, or stop the selected movie. The subscriber enters control commands through the subscriber equipment and the service provider equipment executes the commands to fulfill the purpose of the command, e.g., play, fast forward, rewind, stop or pause the movie.

On page 8, please replace the paragraph beginning on line 25 with the following paragraph:

FIG. 2 depicts a block diagram of the encoder 200 comprising a broadcast encoder 250 and a storage encoder [255]252. The broadcast encoder [a]250 encodes a source video sequence in a conventional manner, i.e., compressing the source video sequence in real-time as the frames are input to the encoder. For example, this

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encoder may be a high speed encoder such as an 8 Mbps MPEG-2 encoder that accurately encodes such difficult to compress programming such as sporting events.

On page 8, please replace the paragraph beginning on line 34 with the following paragraph:

The storage encoder 252 comprises a first encoder 202, frame subsampler 204, a frame buffer 206, a second encoder 208, and a controller 210. The first encoder [102]202 encodes a source video sequence in a conventional manner, i.e., compressing the source video sequence in real-time as the frames are input to the encoder 202. The second encoder 208 operating in conjunction with the subsampler 204 and the buffer 206, encodes a subsampled version of the source video sequence to form a fast forward and fast reverse bitstreams (collectively referred to herein as trick play bitstreams or trick play streams). The first encoder (the play stream encoder 202) contains a real-time MPEG-2 encoder that produces an MPEG-2 compliant, compressed video bitstream (a play stream) from a sequence of 601-format video frames. The second encoder (the trick play stream encoder 204) is also an MPEG-2 real-time encoder 212.

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MARKED UP CLAIMS

23. (twice amended) A method of providing demand television comprising the steps of:
<u>encoding, in real-time, a broadcast video frame sequence to form a broadcast bitstream, while at the same time encoding the broadcast video frame sequence to form a storage bitstream;</u>

transmitting [a]<u>said</u> broadcast bitstream to a plurality of subscriber equipment for decoding;

storing said broadcast bitstream as a storage bitstream while said broadcast bitstream is being transmitted;

upon said subscriber equipment requesting said storage bitstream to enable review of information contained in said broadcast bitstream, transmitting said storage bitstream to said subscriber having requested the storage bitstream;

wherein said storage bitstream comprises at least a play bitstream and a fast forward bitstream, and upon said fast forward bitstream being exhausted of data, automatically switching from said storage bitstream to said broadcast bitstream.

24. (twice amended) A method of providing demand television comprising the steps of:
<u>encoding, in real-time, a broadcast video frame sequence to form a broadcast bitstream, while at the same time encoding the broadcast video frame sequence to form a storage bitstream;</u>

transmitting [a]<u>said</u> broadcast bitstream to a plurality of subscriber equipment for decoding;

storing said broadcast bitstream as a storage bitstream while said broadcast bitstream is being transmitted;

upon said subscriber equipment requesting said storage bitstream to enable review of information contained in said broadcast bitstream, transmitting said storage bitstream to said subscriber having requested the storage bitstream; and

upon said subscriber equipment requesting said broadcast bitstream, switching from said storage bitstream to said broadcast bitstream.